WORKSHEET12-3: Basic Components of a Watershed Plan

Ten Mile Lakes
http://www.deq.state.or.us/wq/tmdls/docs/southcoastbasin/tenmile/tmdl.pdf (TMDL)
http://www.deq.state.or.us/wq/tmdls/docs/southcoastbasin/tenmile/wqmp.pdf (Implementation Plan)

Key Watershed Planning Components	Done ?	Comments
Include the geographic extent of the watershed covered by the plan.	Yes	Geographic information found in the TMDL Report
Identify the measurable water quality goals, including the appropriate water quality standards and designated uses.	Yes	Designated uses mentioned in the Implementation Plan, but not criteria. Water quality criteria were found in the TMDL Report. Sediment and nutrient criteria are narrative, so 7.1 µg/L was used as a numeric target (USEPA recommended lake reference conditions for ecoregion – see Table 38).
Identify the causes and sources or groups of similar sources that need to be controlled to achieve the water quality standards.	Yes	Info found in the TMDL Report. The TMDL addresses nutrients – through sediment loading. Nutrient sources include forestry, agriculture, urban & residential areas, septic systems, internal nutrient cycling in the lake, and biomanipulation of trophic structures.
Break down the sources to the subcategory level.	Yes	See Table 3 in the TMDL Report– breaks down timber, agriculture, urban, and residential
Estimate the pollutant loads entering the waterbody.	Yes	Table 47 in the TMDL Report provides current and interim sediment loads for the entire watershed.
Determine the pollutant load reductions needed to meet the water quality goals.	Yes	86% reduction to meet the reference condition and 50% sediment reduction over 25 years to reach interim target.
Identify critical areas in which management measures are needed.	No	
Identify the management measures that need to be implemented to achieve the load reductions.	Yes	The information is not watershed-specific. Generic information was pulled from other reports/plans.
Prepare an information/education component that identifies the education and outreach activities needed for implementing the watershed management plan.	No	Mentions education, but no specific plan is provided.
Develop a schedule for implementing the plan.	Yes	Table 4 in the WQMP provides a Water Quality Management Plan Timeline.
Develop interim, measurable milestones for determining whether management measures are being implemented.	Yes	50% sediment reduction over 25 years to reach interim target.
Develop a set of criteria to determine whether loading reductions are being achieved and progress is being made toward attaining (or maintaining) water quality standards, and specify what measures will be taken if progress has not been demonstrated.	No	Only the TMDL target.
Develop a monitoring component to determine whether the plan is being implemented appropriately and whether progress toward attainment or maintenance of applicable water quality standards is being achieved.	Yes	Chapter 8 describes the ongoing monitoring programs that will continue.
Estimate the costs to implement the plan, including management measures, I/E activities, and monitoring.	No	Chapter 9 provides funding sources, but not costs
Identify the sources and amounts of financial and technical assistance and associated authorities available to implement the management measures.	No	Chapter 9 provides funding sources, but not costs
Develop an evaluation framework.	No	Very generic.

Notes: Huge amount of info. Difficult to get through. Both TMDL & Implementation reports.

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Bear Creek
http://www.deq.state.or.us/wq/tmdls/docs/roguebasin/middlerogue/bearcreek/tmdlchp1sec12.pdf and
http://www.deq.state.or.us/wq/tmdls/docs/roguebasin/middlerogue/bearcreek/tmdlchp1sec345.pdf
http://www.deq.state.or.us/wq/tmdls/docs/roguebasin/middlerogue/bearcreek/tmdlchp2wqmp.pdf
(Implementation Plan)

Key Watershed Planning Components	Done?	Comments
Include the geographic extent of the watershed covered by the plan.	Yes	Info found in the TMDL report
Identify the measurable water quality goals, including the appropriate water quality standards and designated uses.	Yes	Info found in the TMDL report. Water quality standards were used as the TMDL goals/targets for temperature. *E. coli* criteria used for bacteria goal. The sediment criteria are narrative, so a sediment surrogate of <33% cobble embeddedness was used.
Identify the causes and sources or groups of similar sources that need to be controlled to achieve the water quality standards.	Yes/No	Info found in the TMDL report. The TMDL addresses temperature, sediment, and bacteria; this is not clear in the Implementation Plan – had to look at the TMDL to get this info. The main temperature (heat) sources include near stream vegetation disturbance/removal; channel modifications and widening; dams, diversions, and irrigation districts; hydromodification – water rights; and other anthropogenic sources. Sediment sources include surface erosion, erosion from roads, debris flows/slide, and stream channel erosion. The main bacteria sources are wildlife, livestock waste, failing septics, WWTP malfunctions, rural residential runoff, and urban runoff..
Break down the sources to the subcategory level.	Yes	Info found in the TMDL report
Estimate the pollutant loads entering the waterbody.	Yes	Yes, the TMDL report presents the total current load as well as the loading capacity for temperature, bacteria, and sediment. Soil erosion was used as the surrogate for sedimentation with volumes expressed as a total load per day of soil for the watershed.
Determine the pollutant load reductions needed to meet the water quality goals.	Yes/No	Yes the total percent reduction needed is presented in the Executive Summary of the TMDL Report. Table 2 presents the current % effective shade, the TMDL target, and the % change. Allocations given to each DMA. Table 7 of the TMDL report presents the bacteria loads and percent reduction. The reduction needed for sediment is not provided.
Identify critical areas in which management measures are needed.	No	
Identify the management measures that need to be implemented to achieve the load reductions.	Yes	Each agency wrote their own implementation plan. The separate plans are difficult to follow because they are not in the same format.
Prepare an information/education component that identifies the education and outreach activities needed for implementing the watershed management plan.	No	Not specifically
Develop a schedule for implementing the plan.	Yes	Figure 3 of the Implementation Plan provides a timeline.
Develop interim, measurable milestones for determining whether management measures are being implemented.	No	

Develop a set of criteria to determine whether loading reductions are being achieved and progress is being made toward attaining (or maintaining) water quality standards, and specify what measures will be taken if progress has not been demonstrated.	No	Not anything besides the TMDL target
Develop a monitoring component to determine whether the plan is being implemented appropriately and whether progress toward attainment or maintenance of applicable water quality standards is being achieved.	No	Mentions monitoring but refers to other DMA reports – gives no specifics.
Estimate the costs to implement the plan, including management measures, I/E activities, and monitoring.	No	
Identify the sources and amounts of financial and technical assistance and associated authorities available to implement the management measures.	No	Identifies sources, but not amounts.
Develop an evaluation framework.	Yes	Annual and every 5 year review process

Notes: Lots of documents put together. Very cumbersome to get through. Had to use both Implementation plan and TMDL reports.

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Sandy River
http://www.deq.state.or.us/wq/tmdls/docs/sandybasin/tmdlwqmp.pdf

Key Watershed Planning Components	Done?	Comments
Include the geographic extent of the watershed covered by the plan.	Yes	Chapter 2
Identify the measurable water quality goals, including the appropriate water quality standards and designated uses.	Yes	Temperature targets provided, but effective shade targets translate the nonpoint source loading capacity (Table 3.2). The *E. coli* water quality standards are used as the bacteria goal/target (Section 4.3).
Identify the causes and sources or groups of similar sources that need to be controlled to achieve the water quality standards.	Yes	TMDL addresses temperature, bacteria, and DO. Proposes delisting DO. Temperature (heat) sources include forestry, agriculture, transportation, rural residential, urban, industrial discharge, WWTPs, management of river flows (dams), and hydroelectric power (Table 3.1). Bacteria sources include urban stormwater, nonpoint sources and natural background (Table 4.1).
Break down the sources to the subcategory level.	Yes	The temperature sources cause near stream vegetation disturbance or removal, channel modifications and widening, and reduction of summertime flows. Urban runoff includes the following bacteria sources: pet, wildlife and other animal waste; illegal dumping of sanitary waste; failing septic systems; sanitary sewer overflows. See Tables 3.1 and 4.1.
Estimate the pollutant loads entering the waterbody.	Yes/No	Table 3.8 presents the current heat loading by stream. Bacteria loads are not provided.
Determine the pollutant load reductions needed to meet the water quality goals.	Yes	See Table 4.6 for bacteria reductions. Allocations to NPDES facilities and all land use categories and sources. Allocations for temperature allocated to NPDES, background and nonpoint sources (lumped except for Bull Run facilities). See section 3.10 for temperature reductions.
Identify critical areas in which management measures are needed.	No	
Identify the management measures that need to be implemented to achieve the load reductions.	Yes/No	But they are only proposed. Each DMA must create their own implementation plan – not done yet.
Prepare an information/education component that identifies the education and outreach activities needed for implementing the watershed management plan.	No	Nothing specific yet. Will be included in DMA plans.
Develop a schedule for implementing the plan.	Yes/No	Mentions schedule, but specifics will be included in specific DMA plans. Table 6.2 provides a timeline.
Develop interim, measurable milestones for determining whether management measures are being implemented.	No	Benchmarks will be developed in the DMA plans.
Develop a set of criteria to determine whether loading reductions are being achieved and progress is being made toward attaining (or maintaining) water quality standards, and specify what measures will be taken if progress has not been demonstrated.	Yes	Will revisit interim targets and/or TMDL targets if not meeting.

Develop a monitoring component to determine whether the plan is being implemented appropriately and whether progress toward attainment or maintenance of applicable water quality standards is being achieved.	Yes	Monitoring and evaluation are described in Section 6.8. The WQMP and the DMA-specific Implementation Plans will be tracked by accounting for the numbers, types, and locations of projects, BMPs, educational activities, or other actions taken to improve or protect water quality. Current monitoring will be continued.
Estimate the costs to implement the plan, including management measures, I/E activities, and monitoring.	No	
Identify the sources and amounts of financial and technical assistance and associated authorities available to implement the management measures.	No	Section 6.11 identifies funding sources, but not costs.
Develop an evaluation framework.	Yes	Adaptive management approach

Notes: TMDL & WQMP in one report. This document is just a starting point. Designated management agencies (DMAs) must write their own implementation plans and this hasn't been done yet. Very good intro, but need the DMA plans for more detail – they should be done soon according to schedule.

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Alvord
http://www.deq.state.or.us/wq/tmdls/docs/malheurlakebasin/alvord/tmdl.pdf (TMDL)
http://www.deq.state.or.us/wq/tmdls/docs/malheurlakebasin/alvord/appxawqmp.pdf (Implementation Plan)

Key Watershed Planning Components	Done ?	Comments
Include the geographic extent of the watershed covered by the plan.	Yes	Info found in the TMDL Report
Identify the measurable water quality goals, including the appropriate water quality standards and designated uses.	Yes	The TMDL Report provides the water quality standards for temperature and DO; however, the TMDL target for temperature and DO is a surrogate of percent shade.
Identify the causes and sources or groups of similar sources that need to be controlled to achieve the water quality standards.	Yes	The TMDL Report identifies sources of heat including loss of riparian vegetation, decrease in streamflow, and channel morphology. Causes of low DO include CBOD within the water column, nitrification, SOD, and algal growth.
Break down the sources to the subcategory level.	Yes	The TMDL Report identifies cause of the pollutant sources as several human activities such as forestry, agriculture, transportation, and rural residential.
Estimate the pollutant loads entering the waterbody.	Yes	Figures 2-24 to 2-30 in the TMDL Report present the current solar radiation heat loading and the solar radiation heat loading that occurs with *system potential* land cover for each modeled creek.
Determine the pollutant load reductions needed to meet the water quality goals.	Yes	The surrogate used in this TMDL is percent effective shade (expressed as the percent reduction in potential solar radiation load delivered to the water surface). See Table 3-10 in the TMDL Report.
Identify critical areas in which management measures are needed.	No	
Identify the management measures that need to be implemented to achieve the load reductions.	Yes	Various management measures are listed in Table A-2 of the Implementation plan for Public Awareness/Education, new development and construction, riparian management, federal land, agriculture, forestry, and transportation.
Prepare an information/education component that identifies the education and outreach activities needed for implementing the watershed management plan.	No	Probably will be included in the DMA plans
Develop a schedule for implementing the plan.	Yes	Schedule is included in each DMA Implementation Plan, but the plans are not included as appendices so there's not much detail here.
Develop interim, measurable milestones for determining whether management measures are being implemented.	No	
Develop a set of criteria to determine whether loading reductions are being achieved and progress is being made toward attaining (or maintaining) water quality standards, and specify what measures will be taken if progress has not been demonstrated.	No	TMDL target

Develop a monitoring component to determine whether the plan is being implemented appropriately and whether progress toward attainment or maintenance of applicable water quality standards is being achieved.	No	No specifics here. Have to see DMA Plans
Estimate the costs to implement the plan, including management measures, I/E activities, and monitoring.	No	
Identify the sources and amounts of financial and technical assistance and associated authorities available to implement the management measures.	No	Sources identified, but not costs
Develop an evaluation framework.	Yes	Adaptive Management approach

Notes: DMAs each have individual Implementation Plans for the watershed, but they're not included as appendices, so info is lacking. Had to look at TMDL report and Implementation Plan.

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Applegate
http://www.deq.state.or.us/wq/tmdls/docs/roguebasin/applegate/tmdl.pdf (TMDL)
http://www.deq.state.or.us/wq/tmdls/docs/roguebasin/applegate/wqmp.pdf (Implementation Plan)

Key Watershed Planning Components	Done?	Comments
Include the geographic extent of the watershed covered by the plan.	Yes	Geographic Region of Interest included in Implementation Plan
Identify the measurable water quality goals, including the appropriate water quality standards and designated uses.	Yes	The TMDL report identifies the state water quality standards as the target/goal for the temperature TMDL. The water quality standards for sediment are narrative, therefore, a target of <33% cobble embeddedness has been utilized as an indicator of fine sediment impairment to salmonids (as recommended by USFS Fish Biologists). The sediment target is also used to address the biological criteria TMDL.
Identify the causes and sources or groups of similar sources that need to be controlled to achieve the water quality standards.	Yes	The TMDL addresses temperature, sediment, and biological criteria (temperature and sediment are the causes of biological impairments). Temperature sources include human activities that cause loss of riparian vegetation, channel widening, reduced flow volumes, disconnected floodplains, and flow & temp management from dams. Sources of sediment include agricultural activities, forestry practices, roads development and maintenance, and rural residential-related riparian disturbance.
Break down the sources to the subcategory level.	Yes	Specific sediment sources include riparian vegetation disturbance, livestock grazing, road density, and drainage-ways crossed.
Estimate the pollutant loads entering the waterbody.	Yes/No	TMDL Report provides temperatures at current conditions and temperatures at system potential (see Figures 8 & 9). Sediment load is not provided.
Determine the pollutant load reductions needed to meet the water quality goals.	Yes/No	Page 32 of the TMDL Report provides the percent increase in shade necessary to meet the temperature criterion. Reduction in sediment load not provided.
Identify critical areas in which management measures are needed.	No	
Identify the management measures that need to be implemented to achieve the load reductions.	Yes	Management categories are provided in Table 5 of the Implementation Plan for public awareness/education, new development and construction, existing development, roads, commercial and industrial facilities, residential, riparian areas, public/government facilities, forestry, agriculture, planning and assessment, and monitoring and evaluation. More detail will be given in the DMA Plans
Prepare an information/education component that identifies the education and outreach activities needed for implementing the watershed management plan.	No	Nothing specific
Develop a schedule for implementing the plan.	Yes	Figure 3 in the Implementation Plan provides a schedule/timeline and the DMA Plans will provide more detail.
Develop interim, measurable milestones for determining whether management measures are being implemented.	No	Water quality criteria and TMDL targets. No interim targets.

Develop a set of criteria to determine whether loading reductions are being achieved and progress is being made toward attaining (or maintaining) water quality standards, and specify what measures will be taken if progress has not been demonstrated.	No	Water quality criteria and TMDL targets. No interim targets.
Develop a monitoring component to determine whether the plan is being implemented appropriately and whether progress toward attainment or maintenance of applicable water quality standards is being achieved.	Yes	The Implementation Plan(s) will be tracked by accounting for the numbers, types, locations of projects, BMPs, educational activities, or other actions. The mechanism for tracking implementation efforts will be annual reports submitted to DEQ.
Estimate the costs to implement the plan, including management measures, I/E activities, and monitoring.	No	
Identify the sources and amounts of financial and technical assistance and associated authorities available to implement the management measures.	No	Sources identified, not costs
Develop an evaluation framework.	Yes	Adaptive Management approach

Notes: Had to look at TMDL Report and Implementation Plan. Implementation plan is vague.